

VIRGINIA STANDARDS OF LEARNING

Spring 2006 Released Test

GRADE 6 PLAIN ENGLISH MATHEMATICS

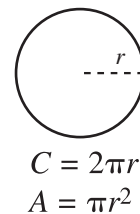
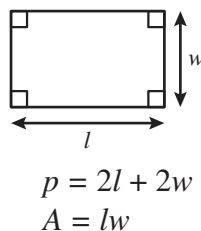
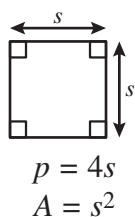
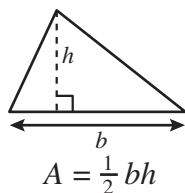
CORE 1

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Grade 6 Mathematics Formula Sheet

Geometric Formulas



Pi

$$\pi \approx 3.14$$

$$\pi \approx \frac{22}{7}$$

Abbreviations

milligram	mg
gram	g
kilogram	kg
milliliter	mL
liter	L
kiloliter	kL
millimeter	mm
centimeter	cm
meter	m
kilometer	km
square centimeter	cm ²
cubic centimeter	cm ³

ounce	oz
pound	lb
quart	qt
gallon	gal.
inch	in.
foot	ft
yard	yd
mile	mi.
square inch	sq in.
square foot	sq ft
cubic inch	cu in.
cubic foot	cu ft

area	A
perimeter	p
circumference	C

year	yr
month	mon
hour	hr
minute	min
second	sec

DIRECTIONS

Read and solve each question. Then mark the space on your answer document for the best answer.

SAMPLE

One hundred sixth-grade students were asked to name one favorite color. The table shows the results.

Color	Number of Students
Blue	28
Red	21
Purple	11
Green	11
Black	29

What percent of the students named blue?

A 28%

B 29%

C 50%

D 57%

- 1

Jamal walks $\frac{3}{4}$ mile in the morning and $\frac{1}{8}$ mile in the afternoon. What is the total distance Jamal walks?

A 1 mile

B $\frac{7}{8}$ mile

C $\frac{1}{2}$ mile

D $\frac{1}{3}$ mile
- 2

The area of a rectangle is between 1,500 and 2,000 square inches. Which could be the length and width of the rectangle?

F 72 in. \times 36 in.

G 60 in. \times 30 in.

H 40 in. \times 30 in.

J 18 in. \times 32 in.

- 3 John plays soccer $2\frac{3}{4}$ hours each day.
How many hours does he play in 3 days?

- A $8\frac{3}{4}$ hours
B $8\frac{1}{4}$ hours
C $6\frac{3}{4}$ hours
D $6\frac{1}{4}$ hours

- 4 $0.084 \div 0.6 =$

- F 7.14
G 1.4
H 0.714
J 0.14

- 5 Look at the chart.

Item	Number in Each Box	Price of Each Box
Pencils	10	\$5.13
Pens	1	\$4.95
Markers	5	\$8.42

What is the total cost of 10 pencils, 10 pens, and 10 markers?

- A \$18.50
B \$26.92
C \$71.47
D \$98.35

- 6 Look at the chart.

Cost of Signs at Two Stores

Store	Red Sign	Blue Sign
A	\$589	\$227
B	\$534	\$285

Jena buys 1 red sign and 1 blue sign.
What is the least amount of money she needs?

- F \$512
G \$761
H \$816
J \$819

- 7 Maria has a piece of rope $\frac{5}{6}$ foot long.

She cuts $\frac{3}{4}$ foot off of it. How much rope does she still have?

- A $\frac{1}{12}$ foot
B $\frac{1}{8}$ foot
C $\frac{1}{6}$ foot
D $\frac{1}{4}$ foot

- 8 Harry works $1\frac{3}{4}$ hours on Friday and $3\frac{1}{2}$ hours on Saturday. What is the total number of hours Harry works?

F $4\frac{1}{4}$ hours

G $4\frac{5}{8}$ hours

H $5\frac{1}{4}$ hours

J $5\frac{1}{2}$ hours

9 $6.596 \div 0.04 =$

A 164.9

B 16.49

C 6.06

D 0.61

- 10 Cody has \$15.00. He spends \$5.75 on a movie, \$1.50 on candy, and \$2.00 for a drink. Which is closest to the amount he has now?

F \$10.00

G \$8.00

H \$5.00

J \$0

Do not turn the
page until your
teacher tells you
to do so.

- 11** There are 30 red marbles and 150 blue marbles in a box. What is the ratio of blue marbles to red marbles?

A $\frac{180}{30}$

B $\frac{30}{80}$

C $\frac{150}{30}$

D $\frac{30}{150}$

- 12** What is the least common multiple (LCM) of 6 and 10?

F 20

G 30

H 60

J 90

- 13** Which statement is true?

A $-599 > -385$

B $4,119 < -3,513$

C $-56,803 > -64,122$

D $-85 > 89$

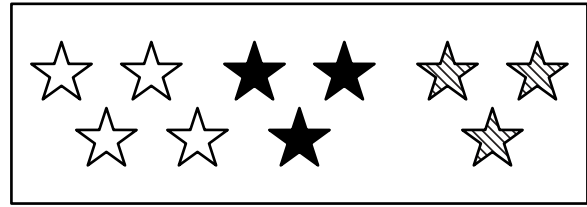
14 Which group has *only* prime numbers?

- F 5, 13, 29, and 47
- G 7, 11, 27, and 43
- H 7, 19, 33, and 41
- J 11, 17, 37, and 39

15 What is the greatest common factor (GCF) of 30, 42, and 48?

- A 2
- B 3
- C 6
- D 8

16 Look at the picture.



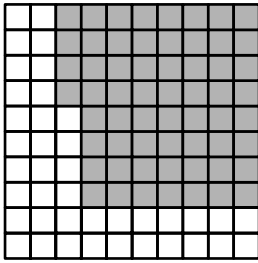
What is the ratio of white stars to black stars?

- F 4 to 3
- G 3 to 4
- H 4 to 10
- J 6 to 10

17 Which statement is true?

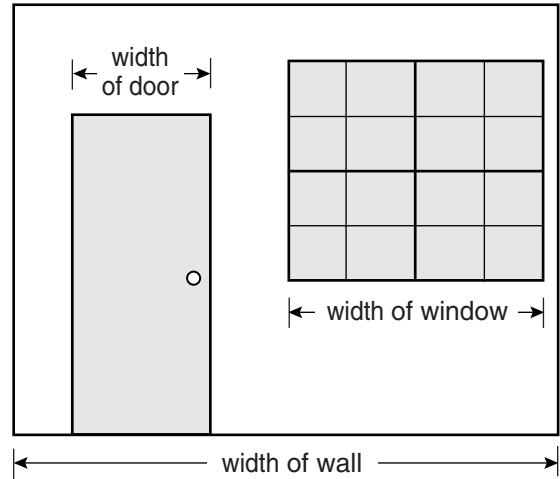
- A $\frac{3}{4} > \frac{7}{12}$
- B $\frac{2}{3} > \frac{6}{7}$
- C $\frac{3}{8} > \frac{6}{11}$
- D $\frac{1}{5} > \frac{1}{4}$

- 18 Which shows the part of the 10-by-10 grid that is shaded?



- F $\frac{1}{2}$
 G $\frac{3}{5}$
 H $\frac{7}{10}$
 J $\frac{3}{4}$

- 19 Look at the picture of the wall.



Which is closest to the width of the wall?

- A 6 window widths
 B 4 window widths
 C 2 door widths
 D 4 door widths

20 What is the sum of the measures of the angles of a quadrilateral?

- F 90°
- G 180°
- H 360°
- J 450°

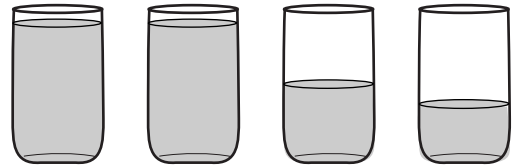
21 Which two figures *always* have four congruent sides?

- A Rhombus and square
- B Rectangle and rhombus
- C Square and equilateral triangle
- D Parallelogram and rectangle

22 The diameter of a circle is 7 inches. Which is closest to the circumference?

- F 21.98 in.
- G 38.47 in.
- H 43.96 in.
- J 153.86 in.

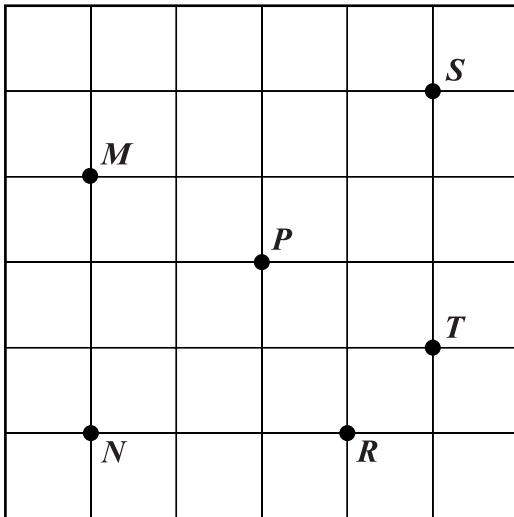
23 Each glass holds 12 fluid ounces. The shaded portions show how much water Robert puts into each glass.



Which is closest to the total amount of water Robert puts into these glasses?

- A 3 fluid ounces
- B 18 fluid ounces
- C 22 fluid ounces
- D 34 fluid ounces

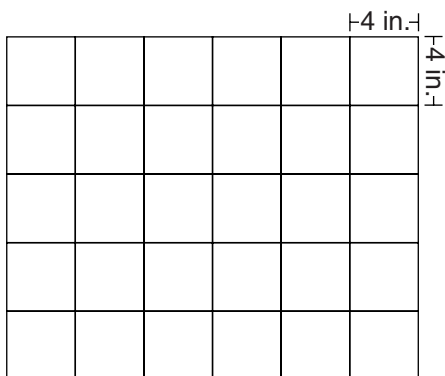
- 24 Six points are shown on the grid.



Which three points can be connected in the order shown to form an acute angle?

- F Points M , N , and R
- G Points M , N , and P
- H Points N , R , and S
- J Points N , P , and S

- 25 Each *small* square is 4 inches wide and 4 inches long.



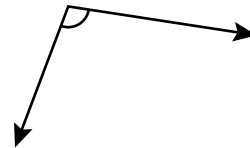
What is the area of the *large* rectangle?

- A 480 sq in.
- B 120 sq in.
- C 80 sq in.
- D 30 sq in.

- 26 Which solid could *not* have two parallel faces?

- F Cube
- G Rectangular prism
- H Pyramid
- J Cylinder

27



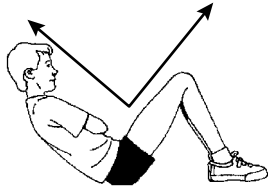
The measure of the angle shown is —

- A between 0° and 45°
- B between 45° and 90°
- C between 90° and 180°
- D greater than 180°

- 28 Which is the *greatest* volume?

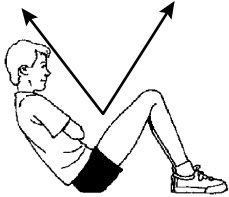
- F 17 pints
- G 2 gallons
- H 35 cups
- J 9 quarts

29

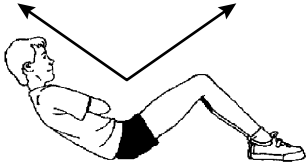


Which angle is congruent to the angle above?

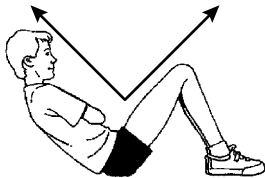
A



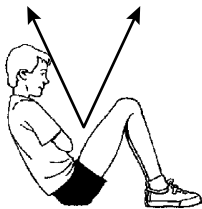
B



C



D



30 Which shape is *not* a quadrilateral?

- F Square
- G Parallelogram
- H Pentagon
- J Trapezoid

- 31 Sam has 4 white flags, 2 yellow flags, and 3 blue flags. Sam picks one flag without looking. What is the probability it is white?

A $\frac{1}{4}$
 B $\frac{1}{9}$
 C $\frac{4}{5}$
 D $\frac{4}{9}$

- 32 What is the range of these numbers?

76, 59, 91, 22, 43, 57, 89, 76, 31

F 43
 G 45
 H 60
 J 69

- 33 Which stem-and-leaf plot correctly shows this data?

15 32 21 13 36 10 23
 30 15 11 27 42 33

A

Stem	Leaf
1	0 1 3 5 5
2	1 3 7
3	0 2 3 6
4	2

B

Stem	Leaf
1	1 3 5 5
2	1 3 7
3	2 3 6
4	2

C

Stem	Leaf
1	0 1 3 5
2	1 3 7
3	0 2 3 6
4	2

D

Stem	Leaf
1	1 3 5
2	1 3 7
3	2 3 6
4	2

34 Look at the numbers.

76, 79, 75, 77, 74

The value 76.2 is the —

- F median
- G mode
- H range
- J mean

35 There are six colors of crayons in a box.

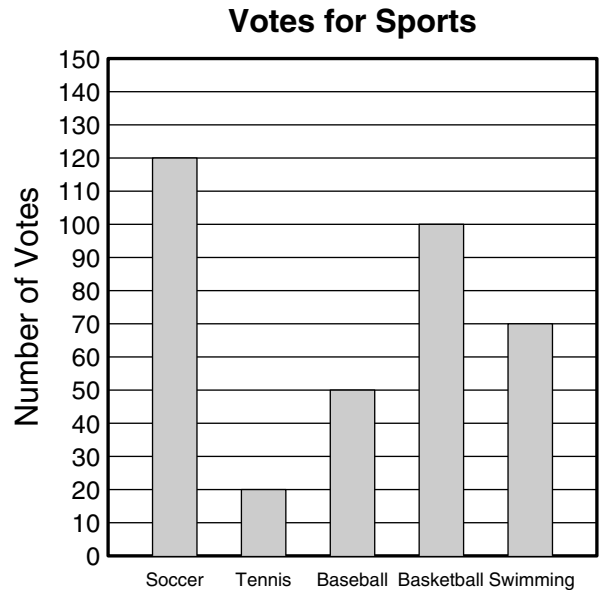
Colors of Crayons

<i>Red</i>
<i>Yellow</i>
<i>Blue</i>
<i>Green</i>
<i>White</i>
<i>Black</i>

Jane picks one crayon without looking.
What is the probability the crayon is orange?

- A -0.6
- B 0
- C 0.6
- D 1

36 Look at the graph.



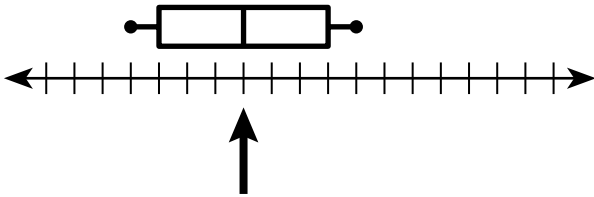
Which sport has 5 times the number of votes as tennis?

- F Basketball
- G Baseball
- H Soccer
- J Swimming

37 Look at the data.

12, 18, 19, 11, 12, 15, 18

The box-and-whisker plot shows this data.



The arrow is pointing to —

- A 11
- B 12
- C 15
- D 18

38 Jay has these 3 shirts and pants.

Shirt Colors	Pants Colors
<i>White</i>	<i>Brown</i>
<i>Green</i>	<i>Black</i>
<i>Yellow</i>	<i>Blue</i>

What is the total number of different combinations of 1 shirt and 1 pair of pants?

- F 9
- G 6
- H 2
- J 1

39 Look at the pattern.

$$\begin{aligned}8^1 &= 8 \\8^2 &= 64 \\8^3 &= 512 \\8^4 &= 4,096\end{aligned}$$

What is 8^5 ?

- A 13
- B 40
- C 20,480
- D 32,768

- 40 What is the variable in this number sentence?

$$3 + v = 45$$

- F 3
- G v
- H =
- J 45

- 41 $2.3 \times 10^7 =$

- A 230,000,000
- B 23,000,000
- C 2,300,000
- D 230,000

- 42 Which step solves this number sentence?

$$4x = 16$$

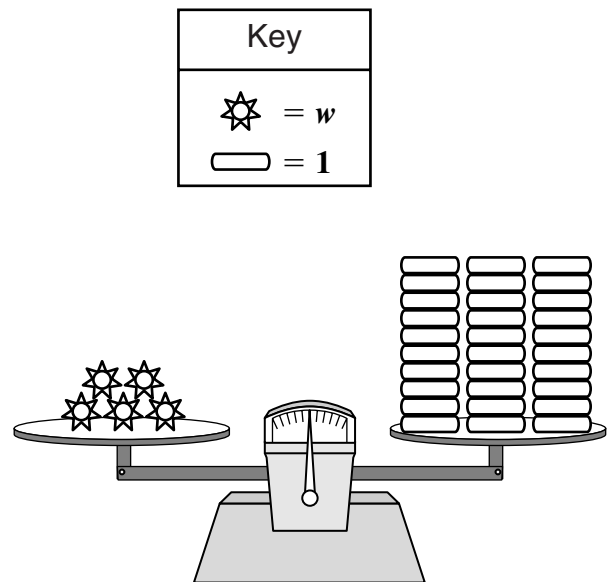
- F $4x - 4 = 16 - 4$
- G $4x - 4 = 16 - 16$
- H $4x \div 4 = 16 \div 16$
- J $4x \div 4 = 16 \div 4$

- 43 What value of y makes the number sentence shown true?

$$y - 3 = 15$$

- A 5
- B 12
- C 18
- D 45

- 44



Which equation shows the scale is balanced?

- F $5w = 30$
- G $w + 5 = 30$
- H $5 - w = 30$
- J $w \div 5 = 30$

45 What is 514 in scientific notation?

- A 5.14×10^1
- B 5.14×10^2
- C 51.4×10^1
- D 514×10^2

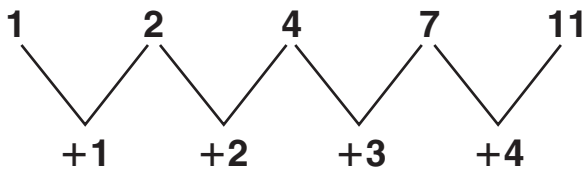
46 Which is an equation?

- F $x + 6$
- G $5 > 7$
- H x
- J $x + \frac{1}{2} = 9$

47 Look at the number pattern.

1, 2, 4, 7, 11, . . .

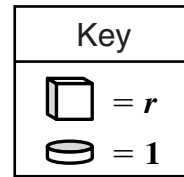
The difference between the numbers increases by 1 as shown below.



The pattern continues. What is the 7th number in the pattern in the box?

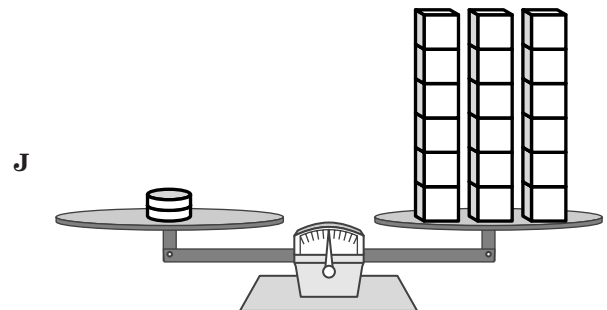
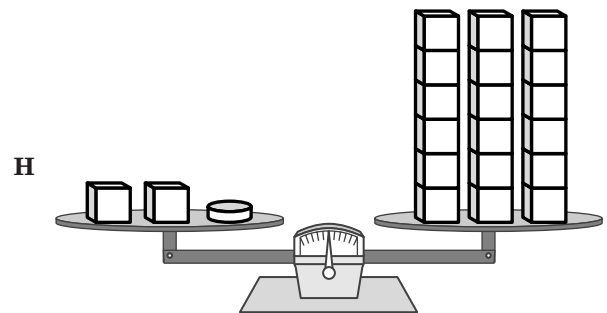
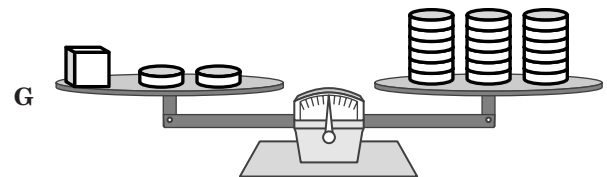
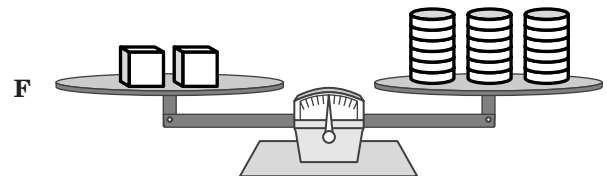
- A 15
- B 19
- C 21
- D 22

48

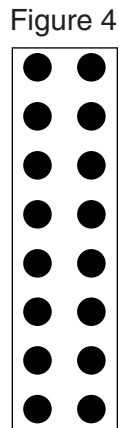
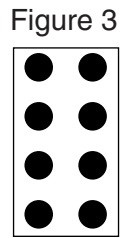
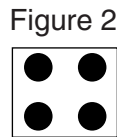
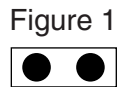


Which scale shows

$$r + 2 = 18?$$



49 Look at the pattern.



The number of dots doubles from one figure to the next. What will be the number of dots in Figure 6?

- A 128
- B 64
- C 32
- D 14

50 Look at the pattern of increasing perfect squares.

25, 36, __, 64, 81, 100

What number needs to be squared to find the missing value?

- F 5
- G 6
- H 7
- J 8

Answer Key

Test Sequence Number	Correct Answer	Reporting Category	Reporting Category Description
1	B	006	Computation and Estimation
2	G	006	Computation and Estimation
3	B	006	Computation and Estimation
4	J	006	Computation and Estimation
5	C	006	Computation and Estimation
6	G	006	Computation and Estimation
7	A	006	Computation and Estimation
8	H	006	Computation and Estimation
9	A	006	Computation and Estimation
10	H	006	Computation and Estimation
11	C	005	Number and Number Sense
12	G	005	Number and Number Sense
13	C	005	Number and Number Sense
14	F	005	Number and Number Sense
15	C	005	Number and Number Sense
16	F	005	Number and Number Sense
17	A	005	Number and Number Sense
18	G	005	Number and Number Sense
19	D	007	Measurement and Geometry
20	H	007	Measurement and Geometry
21	A	007	Measurement and Geometry
22	F	007	Measurement and Geometry
23	D	007	Measurement and Geometry
24	G	007	Measurement and Geometry
25	A	007	Measurement and Geometry
26	H	007	Measurement and Geometry
27	C	007	Measurement and Geometry
28	J	007	Measurement and Geometry
29	C	007	Measurement and Geometry
30	H	007	Measurement and Geometry
31	D	008	Probability and Statistics
32	J	008	Probability and Statistics
33	A	008	Probability and Statistics
34	J	008	Probability and Statistics
35	B	008	Probability and Statistics
36	F	008	Probability and Statistics
37	C	008	Probability and Statistics
38	F	008	Probability and Statistics
39	D	009	Patterns, Functions, and Algebra
40	G	009	Patterns, Functions, and Algebra
41	B	009	Patterns, Functions, and Algebra
42	J	009	Patterns, Functions, and Algebra
43	C	009	Patterns, Functions, and Algebra
44	F	009	Patterns, Functions, and Algebra
45	B	009	Patterns, Functions, and Algebra
46	J	009	Patterns, Functions, and Algebra
47	D	009	Patterns, Functions, and Algebra
48	G	009	Patterns, Functions, and Algebra
49	B	009	Patterns, Functions, and Algebra
50	H	009	Patterns, Functions, and Algebra

**Grade 6 Plain English
Mathematics, Core 1**

If you get this many items correct:		Then your converted scale score is:
0		000
1		037
2		093
3		126
4		151
5		170
6		187
7		201
8		214
9		226
10		236
11		247
12		257
13		266
14		274
15		282
16		290
17		298
18		305
19		312
20		320
21		327
22		334
23		341
24		348
25		354
26		361
27		368
28		375
29		381
30		389
31		396
32		402
33		410
34		418
35		425
36		433
37		442
38		450
39		460
40		469
41		479
42		490
43		503
44		517
45		533
46		552
47		575
48		600
49		600
50		600

